Performing Symbiosis: Mushrooms and Contemporary Art

Dario Ré

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By: Dario Ré
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Dr. Cynthia Hammond

_____Supervisor
Dr. Johanne Sloan

Approved by:

_____
Dr. Alice Ming Wai Jim, Graduate Program Director

_____
Rebecca Taylor Duclos, Dean of Faculty of Fine Arts

Date _____

Abstract

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This thesis examines mushrooms in contemporary art and considers the ecological, social and aesthetic implications embedded in interkingdom relationships. I have chosen to focus specifically on participatory and relational artworks, thus I consider the ways in which leading art critics, theorists and writers such as Claire Bishop, Grant Kester, Nato Thompson and Nicolas Bourriaud have approached relational art. My investigation is based on two case studies: Carsten Höller's installation *Soma* (2010) at the Hamburger Bahnhof in Berlin; and the performative mushroom foray *Terrestrial/Celestial* (2010) enacted by Toronto-based artist Diane Borsato. These works employ elements of mycology to underscore the workings of fungi in the natural ecosystem, thus enabling a nuanced understanding of who is relating to whom within the given encounter and to what effect. Ultimately the notion of symbiosis is central to this analysis. Furthermore, I situate these works within posthumanist theory and compare Gilles Deleuze and Félix Guattari's notion of the rhizome to a research/artistic methodology based on mycology. Given the myriad of art projects that employ non-human subjects, an understanding of symbiosis can inform essential questions that surround collaborative, participatory, and relational art practices today.

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Introduction

Experimental composer, writer and artist, John Cage, one of the most influential figures of the post-war avant-garde, continues to posthumously affect contemporary cultural practices. He is perhaps most well known for his composition, *4'33"* (1952), in which a performer is instructed to simply sit motionless for four minutes and thirty-three seconds—the audience's attention thus redirected to the ambient sounds, creating an indeterminate score. The stirs and coughs accompanied by the idle hum of urban space exemplify the artistic application of chance and indeterminacy that characterize Cage's career. He is less well known however for his expertise in mycology, a discipline that parallels much of his artistic methodology. His interest-cum-obsession with mushrooms began when, after over a decade of living in New York City, Cage and a small community of friends moved onto 116 acres of land in the rural town of Stony Point, New York and founded the Gate Hill Cooperative. This proximity to nature was a key facet in Cage's devotion to the workings of the forest—specifically that of fungi (fig. 1). During this period, in an exchange with friend and fellow composer, Lou Harrison, Cage said, "I find the occupation of attempting an identification of a toadstool… one of the most difficult and absorbing tasks I have ever taken on."[1] This was indeed the beginning of a life-long passion for mycology.

In 1954, the same year Cage moved to Stony Point, he wrote an essay called "Music Lover's Field Companion," recalling the field guides with which he was becoming enthralled; this is perhaps one of his first artistic investigations into mycology *and* music. Cage reached near public stardom for his fungi expertise in 1959 after an appearance on the Italian television game show *Lascia o raddoppia?* (Leave It or Double It?). Contestants, who were invited onto the show as experts on a given topic, were faced with a series of increasingly difficult questions. Each successful answer was followed by a choice to walk away with the winnings or continue with a chance to double at the risk of losing everything. The grand prize was 5,120,000 lire (about $8000 in 1959) and if pursued by a contender would span several episodes. Cage was invited onto the show as a mushroom specialist[2] and successfully answered every question in the first

[1] Kenneth Silverman, *Begin Again: A Biography of John Cage* (Evanston: Northwestern University Press, 2010), 122.

[2] Although it is unclear exactly how Cage was chosen to be a contestant, he was in Milan visiting composer Luciano Berio who at the time was conducting audio research for *Radiotelevisione italiana* (RAI)—the producers of *Lascia o*

four episodes, launching him and his growing fan base into the fifth and final episode where he was asked to name all twenty-four genera of white-spored mushrooms found in George Atkinson's *North American Mushrooms and Fungi: A Complete Guide*.[3] Without hesitation, he did so alphabetically and won the grand prize.[4] Three years later in 1962, Cage joined lithographer Lois Long and esteemed mycologist Guy Nearing to revitalize the then defunct New York Mycological Society.[5]

Long and Cage would then collaborate (joined by mycologist Alexander Smith) on the publication of *Mushroom Book* (1972), which mused on the workings of mushrooms through mycological, artistic and literary juxtapositions. Published as an edition of 75 (with ten artist proofs and five presentation proofs), the book includes immaculate mycological illustrations by Lois Long alongside Cage's poems, sketches and layered enigmatic textual fields (fig. 2) that reflect his notion "that ideas are to be found in the same way that you find wild mushrooms in the forest, by just looking."[6] During Cage's teaching tenure at the New School for Social Research in Manhattan (1956-1960) he taught courses on Virgil Thompson, Erik Satie, Experimental Composition and most notably courses on mushroom identification.[7] Cage was joined by Guy Nearing to teach these courses and together they facilitated mushroom forays, collected edible varieties and prepared and ate meals with the students.[8] For Cage, the appeal was not so much the iconography of the mushroom, but the search, the foray and the pedagogical framework they offer. Cage's multifaceted engagement with mushrooms has made him an

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raddoppia. Cage was also working alongside composers, Sylavano Bussotti and Bruno Maderna, as well as Umberto Eco and Peggy Guggenheim, all of which had connections to RAI. "John Cage in Italy," accessed March 10, 2016, http://www.johncage.it.

[3] First published in 1903, Atkinson's *North American Mushrooms and Fungi: A Complete Guide* was considered the standard text for identification among mycologists in the late 1950s.

[4] Kenneth Silverman, *Begin Again: A Biography of John Cage*, 166. For a complete transcription of the exchange, see, "Transcription of the Final Episode of *Lascia o raddoppia* (Milan, February 26, 1959), Featuring John Cage, Guest Contestant, and Mike Bongiorno, Host," translated into English by Stefano Pocci, accessed March 14, 2016, http://johncage.org/blog/transcription.html. Following his victory, the Bresadola Mycological Society of Trento immediately offered Cage an honorary membership. David Rose, "A Plurality of One: John Cage and the People-to-People Committee on Fungi," *Fungi,* vol. 1, no. 4 (Winter 2008): 31.

[5] Cage was also appointed vice president of the People-to-People for Fungi, a chapter in the international friendship program developed by President Dwight Eisenhower in the mid-1950s. See, David Rose, "A Plurality of One."

[6] Joan Retallack and John Cage, *Musicage: Cage Muses on Words * Art * Music* (Hanover: Wesleyan University Press, 1996), 90.

[7] *New School Catalog* (vol. 19, no. 33, 1959); (vol. 17, no. 1, 1959); (vol. 17, no. 31, 1960); cited from "John Cage Trust," accessed April 11, 2016, http://johncagetrust.blogspot.ca/2014/08/john-cage-at-new-school-1950-1960.html.

[8] Retallack and Cage, *Musicage,* 89-90.

important predecessor for artists who have turned to mycology. Indeed the hunt for these allusive, ephemeral and mysterious beings parallels many of the dematerialized and participatory art practices today.

This paper examines mushrooms in contemporary art and considers the ecological, social and aesthetic implications embedded in this interkingdom relationship. I have borrowed the term 'interkingdom' and 'transkingdom' from the field of genetics where it refers to the six taxonomic ranks that include *Animalia*, *Plantae*, *Fungi,* as well three other microscopic kingdoms. I believe that adopting its categorical function from the biological sciences is necessary to respond to the myriad of art projects that employ (implicitly and explicitly) non-human subjects. Furthermore, the terms encourage a deeper consideration of interconnectivity and multiplicity while further distancing art and critical discourse from inherited ideas of human supremacy over nature. I have chosen to focus specifically on mushrooms as taken up in participatory and relational artworks, thus I also address how leading art critics, theorists and writers such as Claire Bishop, Grant Kester, Nato Thompson and Nicolas Bourriaud have approached relational art. I want to ask how ideas of collectivity, collaboration and participation, which have become ubiquitous frameworks for contemporary art, can be re-framed by exploring mutualistic fungal partnerships and the notion of symbiosis. In other words, can an understanding of the role mushrooms play in the forest ecosystem shed new light on the analysis of participatory art practices today? My research model is inspired by the symbiotic relationships between mushrooms and other organisms in the natural ecosystem. I believe this emphasis on balance and reciprocity has much to offer the world of art and cultural production. I am also interested in how conventional mycology (the actual study of mushrooms) gets taken up and reinterpreted by artists.

Since John Cage's death in 1992, his contributions to the creative sphere have been honored in both art and music worlds.[9] In fact, a surge of artists have taken up this aspect of Cage's career and paid homage to his fascination with and devotion to mycology. Paul Walde for example, an

[9] Cage's 100th year anniversary in 2012 was particularly rich for festivals and international tribute events devoted to his music. Examples include: "An Opening of Doors — Music of John Cage in Celebration of his 100th Birthday," in Montreal, Canada; "Sounds and Silence — A John Cage Centenary Celebration," Burlington, Vermont; "John Cage's Musicircus, a Festival and Conference," Moscow, Russia; "John Cage *4'33"* Lessons in Funghi," Florence, Italy; to name a few. For a more exhaustive list of John Cage celebrations see, "Events Honoring Cage" *Los Angels Times*, September 2, 2012, accessed March 14, 2016, http://articles.latimes.com/2012/sep/02/entertainment/la-et-cm-cage-list-20120902.

intermedia artist, composer and curator based in Victoria, British Columbia, collaborated with an industrial and sound engineer in 2014 to create *Mycolophonia* (fig. 3). The performance, which took place at The Civionic Engineering Lab in Anmore, British Columbia, captured and amplified the sound of falling mushroom spores. This was in direct response to a statement from Cage in 1988 in which he pondered the sound of falling spores: "whether the spores, which in size and shape are extraordinarily various, and in number countless, do not on dropping to the earth produce gamelan-like sonorities."[10] Walde is not the first to respond to Cage's spore postulation[11] however his use of hypersensitive laser vibrators to literally amplify the sound of falling spores has directly realized Cage's wonder. Walde has also made large-scale pictures of layered mushroom spore prints as well as his own musical compositions that bring attention to the indeterminate homology between mushrooms, music and art (fig. 4).

Mushrooms are indeed embedded in a multi-faceted history of human engagement.[12] Today, they are replacing Styrofoam as a biodegradable packing material, and are used for cleaning oil spills, filtering contaminated water, mining precious metals from electronic waste, insulating walls, erecting buildings, bio-illuminating advertisements and urban space, altering perception, guiding in spiritual pursuits, treating illness, and of course eaten as food. They surface in the world of contemporary art in equally diverse ways: from the mycoremediative application of the organism itself as taken up by Katherine Ball and Tagny Duff to situations where artists cultivate mushrooms in time-based practice, such as those by Zeger Reyers, Kate Casanova and Klaus Weber. Other artists, like Roxy Paine, use mushroom morphology to address ideas of replication while Anni Ratti's gallery-cum-laboratory engages multifaceted research on psilocybin. Phil Ross, whose practice is at the forefront of mycotechnology, builds architectural forms using mycelial bricks, while artists such as Fred Tomaselli, Marie Jirásková, and the Russian avant-garde duo Igor Makarevich and Elena Elagina, explore psychedelic folklore and the mushroom

[10] John Cage, *Silence: Lectures and Writings* (Middletown: Wesleyan University Press, 1961), 275.
[11] Patrick Hickey and Yann Seznec's installation, *The Secret Sound of Spores* (2010) captured the data from falling mushroom spores and triggered midi software to created sound. First performed at The Edinburgh Royal Botanical Gardens in July 2010 and subsequently at The Arches as part of The Glasgow Sound Thought Festival in February 2011. "Yann Seznec," accessed March 14, 2016, http://www.yannseznec.com/works/spores/.
[12] Ethnomycology (the study of historical use and cultural impact of fungi) was legitimated in late-1950 as a subfield to ethnobotany. See, Frank M. Dugan, *Conspectus of World Ethnomycology: Fungi in Ceremonies, Crafts, Diets, Medicines, and Myths* (Amer Phytopathological Society, 2011).

as a symbol of hallucination. The breadth of mushrooms in art is unprecedented and thus deserves to be studied as a distinct art historical category.

My investigation will be based on two case studies. First, I will examine Carsten Höller's installation *Soma* (2010) at the Hamburger Bahnhof in Berlin in which his artistic engagement with the iconic red with white polka dotted mushroom, *Amanita muscaria,* steers the viewer/participant towards a longstanding debate about the botanical (or mycological) identification of Soma, the Vedic ritual drink frequently discussed in the sacred Hindi text, *Rigveda*. Second, I will consider the performative mushroom forays enacted by Toronto-based artist Diane Borsato; specifically the relational performance and subsequent dissemination of *Terrestrial/Celestial* (2010) in which she organized a knowledge exchange between two disparate communities (the Vancouver Mycological Society and the Royal Astronomical Society of Canada): the mycologists led a foray during the day and the astronomers facilitated stargazing at night. By employing elements of mycology, these works by Höller and Borsato (albeit differently) underscore the workings of fungi in the natural ecosystem, which enables a nuanced understanding of who is relating to whom within the given encounter and to what effect. Ultimately, the notion of symbiosis is central to my analysis. Unfettered from its birthplace in the natural sciences, I believe that an understanding of symbiotic relationships between mushrooms and the natural ecosystem can inform essential questions that surround collaborative, participatory, and relational art practices today: those that address the binary lens of active and passive spectatorship; the "false polarity of 'bad' singular authorship and 'good' collective authorship,"[13] to use the words of Claire Bishop; the influence of collaborative practice on conventional notions of aesthetic autonomy; contemporary art's infatuation with consuming experience, what Nato Thompson considers to be "mere products of an information economy that caters to the needs of power;"[14] as well as ontological questions concerning the defining conditions of art itself, as addressed by Grant Kester, for instance.[15] To further unpack these questions, I will compare Gilles Deleuze and Félix Guattari's influential metaphor of the rhizome

[13] Claire Bishop, *Artificial Hells: Participatory Art and the Politics of Spectatorship* (New York: Verson, 2012), 8.
[14] Nato Thompson, "Contradictions of Time: On Social Practice from a Temporal Perspective," *e-flux Journal*, no. 20 (2010).
[15] Grant Kester, *The One and the Many: Contemporary Collaborative Art in a Global Context* (Durham: Duke University Press, 2011).

to a research/artistic methodology based on mycology. Before doing so I will briefly situate my use of the term 'relational art.'

Rhizomatics and Relational Art

The term 'relational art' officially entered a contemporary art discourse via Nicolas Bourriaud's book *Relational Aesthetics*. He is often credited with opening the dialogue that surrounds participatory art practices today. Art historian and critic Claire Bishop, for example, credits Bourriaud with "rendering discursive and dialogic projects more amenable to museums and galleries" as well as "catalyzing a more critically informed discussion around participation art"[16] (ironically, Bishop is one of Bourriaud's strongest critics, which I return to below). According to Bourriaud, relational art is a "set of artistic practices which take as their theoretical and practical point of departure the whole of human relations and their social context, rather than an independent and private space."[17] In other words, the critical or analytical focus (indeed the interest) of these projects has been turned towards an encounter created by the work itself. This is in contrast to more conventional modernist traditions, which placed significant emphasis on the art object, often to the point of overlooking inherent contexts, such as the means of production or the work's infrastructural affiliations. Modernist criticism thus functioned as if it were a closed system; once displayed on a white wall, the artwork and the critic were assumed to begin anew.

Grant Kester denies this distanciation of relational aesthetics from modernism and accuses the theory of reaffirming the divide between artist and viewer associated with modernist theory and criticism. Conversely, Kester advocates for participatory art that revokes authority from the artist to break hierarchical tendencies, thus creating equal social relationships between those involved. He argues for the importance of dialogical practice, which he sees as less interested in the dematerialization of art objects (despite this being a frequent result of the work) and instead looks to underscore the rearticulation of materiality. Where he and Bourriaud agree is in that "the habitus of interaction is an essential constituent of creative action."[18]

[16] Claire Bishop, *Artificial Hells*, 2.
[17] Nicolas Bourriaud, *Relational Aesthetics* (Dijon: Les Presses du réel, 2002), 113.
[18] Grant Kester, *The One and the Many,* 139.

Claire Bishop, who invariably agrees with this significant albeit incomplete facet of what constitutes relational art, positions her qualitative criteria starkly in opposition to Bourriaud and Kester. She defines participation as a "politicized working process,"[19] one that succeeds not by predicating social harmony, but "by exposing that which is repressed in sustaining the semblance of this harmony." In her scathing and highly influential critique of Bourriaud, "Antagonism and Relational Aesthetics," she considers the mediation of relational art by the artist him/herself to be an act of self-congratulation that simply shapes the artwork as a form of entertainment.[20] She problematizes this power dynamic and emphasizes the importance of aesthetics in participatory works which she believe function as forms of "aisthesis: an autonomous regime of experience that is not reducible to logic, reason or morality."[21] She also argues for the alleviation of pressure from art projects to implement political and/or social change in and of themselves and considers the "perverse, disturbing and pleasurable experiences"[22] offered to the audience as having the capacity to elicit imaginative futures. For Bishop, this is enough to allow for critical discourse and doesn't negate (and can furthermore encourage) an embrace of aesthetics. This is not to say that Bishop is indifferent to the pragmatics or the potential for political impact of relational art. She sensibly inquires, "if relational art produces human relations, then the next logical question to ask is what types of relations are being produced, for whom, and why?"[23]

Curator, Nato Thompson is perhaps more explicitly concerned with the socio-political implications of relational practices, or specifically what he calls their "material consequences." His work focuses on so-called socially engaged projects: "how does it [art] translate into radical action? How does it assist in the broadening of social justice?"[24] The redefining of aesthetic experiences to consider temporal or durational processes or issues of activism and social justice has its roots in the art of the 1960s and 1970s, and continues to be central to the analyses of dialogical, relational and socially engaged projects today. Thompson has fittingly framed these practices as concerning the "living as form," by which he is interested in content and process as being alive: "The call for art into life at this particular moment in history implies both an urgency

[19] Claire Bishop, *Artificial Hells*, 2.
[20] Claire Bishop, "Antagonism and Relational Aesthetics," *October,* vol. 110 (Fall 2004): 51-79.
[21] Claire Bishop, *Artificial Hells*, 18.
[22] Ibid, 284.
[23] Claire Bishop, "Antagonism and Relational Aesthetics," 65.
[24] Nato Thompson, "Contributions to a Resistant Visual Culture Glossary," *The Journal of Aesthetics and Protest*, http://www.joaap.org/new3/thompson.html.

to matter as well as a privileging of the lived experience."[25] This is not to be conflated with the attempts of the historic avant-garde to collapse art and life; Thompson is stripping away the defining characteristics of art to draw attention to the impact of a given project and how it affects its surroundings, social or otherwise:

> Socially engaged art is not an art movement. Rather, these cultural practices indicate a new social order—ways of life that emphasize participation, challenge power, and span disciplines ranging from urban planning and community work to theater and the visual arts.[26]

I share Thompson's interest in expanding disciplinary boundaries to consider the ways in which art functions with regards to relationality. I believe participation should be emancipated from a sense of activeness and extend into nuanced contexts, such as those ignored in modernist traditions as described above, or those hidden by political agendas. It should also reach well beyond the human condition to include ontological questions of materiality, posthuman relationality and ecological participation. After all, the mere enactment of a social interaction (however fleeting) depends on an ecological web of symbiosis. One of the greatest potentials of relational art is that by placing relationality at the heart of its analysis, it frames a space of criticality that revolves around the complexities of interconnectivity. From this perspective, I believe we must supplement our consideration of contemporary art with tools from the natural sciences, which have long since dealt with living *relations*.

The notion of the rhizome as described by Gilles Deleuze and Félix Guattari has influenced a myriad of cultural practices. Art historian, Miwon Kwon, for example, uses the rhizome to describe the liberating effects of deterritorializing the physical site in so-called site-specific art. She claims that artists such as Andrea Fraser, Mark Dion and Renée Green (among others) approach the site as "predominantly an intertextually coordinated, multiply located, discursive field of operation;"[27] as will become clear, this is not unlike the Deleuzianguattarian rhizome. Toni Negri and Michael Hardt in their coauthored philosophical deliberation on global

[25] Nato Thompson, *Living as Form: Socially Engaged Art from 1991-2011* (Cambridge: MIT Press, 2012).
[26] Nato Thompson, *Living as Form,* 31.
[27] Miwon Kwon, *One Place After Another: Site-Specific Art and Locational Identify* (Cambridge: MIT Press, 2002), 159.

economics, *Empire,* employ rhizomatic theory to depict the decentralization of nation-states and subsequent network of corporations, NGO's, banks and governments that has come in its wake.[28] Grant Kester further layers upon Negri and Hardt's association by saying "we [those who wish to resist] must meet the rhizomatic forces of capital with the Deleuzean 'flows' or migration and unplanned and local gestures."[29] Media theory collective, Critical Art Ensemble, have also taken to the rhizome and likened it to the Internet, criticizing network technologies as "having reinforced existing power structures by allowing them to become 'nomadic.'"[30] Notions such as 'multiplicity,' 'decentralization,' 'networks' and 'nomadism' all help to frame rhizomatic theory, which has in turn appealed to economists, artists and thinkers alike. With that being said, it is worth considering the term and its origins more fully.

In botanical terms, the rhizome is an underground stem that is capable of propagating roots or shoots from its nodes. Philosophically, Deleuze and Guattari develop the rhizome dialectically with an arborescent, bottom-up, tree model, upon which they argue all of Western thought originates. The tree, which has a starting point (the seed) and grows upward and outward predictably, promotes ideas of infinite growth from a single origin. According to Deleuze and Guattari, this ubiquitous model based on linearity, dualism and binary logic is oversimplified, absolute and neglects to account for innumerable natural and social phenomena. The rhizome on the other hand functions from the middle, void of beginnings and endings, subjects and objects. It is an "acentered, nonhierarchical, nonsignfying system."[31] In the book, *A Thousand Plateaus,* in which Deleuze and Guattari first use the term rhizome, they exemplify rhizomatic relations using the mutualistic partnership between wasps and orchids:

> The orchid deterritorializes by forming an image, a tracing of a wasp; but the wasp reterritorializes on that image. The wasp is nevertheless deterritorialized, becoming a piece in the orchid's reproductive apparatus. But it reterritorializes the orchid by

[28] Michael Hardt and Antonio Negri, *Empire* (Cambridge: Harvard University Press, 2000), cited in Grant Kester, *The One and the Many*, 120-121.
[29] Grant Kester, *The One and The Many*, 121.
[30] Critical Art Ensemble, "Nomadic Power and Cultural Resistance," in *The New Media Reader*, Noah Wardrip-Fruin and Nick Montfort, eds. (Cambridge: MIT Press, 2003), 783-90, cited in "Rhizome," The Chicago School of Media Theory, accessed April 11, 2016, https://lucian.uchicago.edu/blogs/mediatheory/keywords/rhizome/.
[31] Gilles Deleuze and Félix Guattari, *A Thousand Plateaus: Capitalism and Schizophrenia* (Minneapolis: University of Minnesota Press, 1987), 21.

> transporting its pollen. Wasp and orchid, as heterogeneous elements, form a rhizome. […] a veritable becoming, a becoming-wasp of the orchid and a becoming-orchid of the wasp.[32]

Paradoxically, Deleuze and Guattari's orchid-wasp example reverts to dualistic semantics and furthermore oversteps an essential biological actor to this heterogeneous relationship. That is, the symbiotic relationship between *all* orchids and their respective mushroom partners during germination and seedling growth (referred to as myco-heterotrophy). Without this critical collaboration, the flower is unable to grow and would thus never meet a wasp.

I want to suggest that rhizomatic relations are not the only natural relationships that can be intellectually productive, and I therefore want to propose an extension of the ecological metaphor to include symbiotic fungal relationships. The mushroom's symbiotic model is distinctive in that it allows us to acknowledge the influence of interspecies exchange as well as ideas of reciprocity and ecological balance. For these reasons, mushrooms can perhaps help to shift the current discourse around participatory and relational art. Indeed, many of the questions raised by today's art practices are paralleled in the complex roles mushrooms play in the ecosystem.

Mychorrhizal Symbiosis and the Posthuman Subject

Mushrooms exist in three forms: saprophytic, parasitic and/or mychorrhizal. Saprophytes (from the Greek *sapros*- "rotten" or "putrid" and *phyton,* "plant") are decomposer fungi; they are the filterers and recyclers of the ecosystem. They obtain nutrients from dead matter and are responsible for keeping the earth from being smothered in organic debris. Parasites are non-mutualistic symbiotic relationships that subsist on the living tissue of their host. They can attack plants and animals alike but are generally (though not always) adapted to a specific species. Dutch Elm's Disease for example, which has devastated native elm populations around the world, is the result of a parasitic mushroom in the genus *Ophiostoma*.

Mycorrhizae (from the Greek *mykes*- "fungus" and *rhiza*, "root") are mutualistic symbiotic relationships between fungi and the roots of vascular plants. They are ubiquitous and exist in

[32] Ibid, 10.

90% of all plant species.[33] There are two types of mycorrhizal relationships: *endotropic,* in which the mushroom hyphae (the underground filaments that make up the organism itself) are intracellular and literally penetrate the cell of a plant partner; and *ectotropic*, in which the hyphae create a sheath around the cell. Both models function as networks that allow for the transfer of nutrients. To further explore the metaphoric complexities of this partnership we must differentiate between a mushroom as a classic cap-and-stem morphological model and a mushroom as the organism itself: the mycelium, which consists of a web-like network of thousands of tiny threads, called hyphae. This system is analogous to fruit; just as apples are products of a tree or berries products of a shrub, mushrooms are the fruiting bodies of mycelium. They are classified in the kingdom *Fungi*, which has a closer evolutionary lineage to humans than to plants. One of the evident similarities is the way in which we generate energy—by eating, as opposed to synthesizing energy from the sun like plants. However, instead of ingesting food and digesting it *inside* their bodies, fungi are exoenzymatic, which means they secrete digestive enzymes outside of themselves thus growing into their food source. Fungi are essentially encased in a giant stomach. This physiology allows them to break down surrounding soils and make available nutrients such as nitrogen, potassium, phosphorus and calcium, which are shared with a plant partner in exchange for energy garnered through photosynthesis.

Endomycorrhizae make up the vast majority of symbiotic partnerships but are nearly undetectable with the naked eye. Propagation occurs when a freshly germinated mushroom spore finds a young receptive root and enters into its tender tissue. The mushroom then develops two growth patterns: one, as fine branch-like structures (called *arbuscules*) within the plant cell, which builds the main site of exchange between the two organisms; and two, as long reaching filaments outside of the root that extend deep into the surrounding soil. This makes available to the plant far more soil surface and thus potential for water and nutrients then would otherwise be accessible without a fungal partner. Compared to the estimated 300,000 plant species with endomycorrhizal partnerships, ectomycorrhizal symbiosis is found in only about 2000 species of plants. However, these include many of the ubiquitous forest trees in the Northern Hemisphere (ex. pine, spruce, fir, oak, maple and aspen). Also, their associated fungal partners are among the most iconic and desirable mushrooms as far as humans are concerned—chanterelles

[33] Bryce Kendrick, *The Fifth Kingdom* (Newburyport: Mycologue Publications, 1992), 262.

(*Cantharellus spp*.), King Boletes (*Boleuts edulis*), truffles (*Tuber spp*.), and *Amanita muscaria* to name a few. The morphology of this relationship is best understood by imagining a cross section of a root (fig. 5). If cut and examined, the ectomycorrhizae would exhibit a ring of fungal tissue around the root with larger pockets of networked hyphae building up between the cell layers that act as a receptacle for carbohydrate reserves to be used by the tree and/or mushroom during dramatic climate fluctuations or other periods of deficiency.[34] Endomycorrhizae on the other hand would be seen inhabiting the space inside the plant's cell walls.

The hyphae can also act as a bridge between species or individuals within the same species helping to equalize the environment as a whole. *Monotropa uniflora* (commonly referred to as Ghost Flower, Ghost Pipe or Indian Pipe) is emblematic of this process. The fragile, pure white, ghostly flower grows in leaf litter and indeed can be mistaken for a mushroom. It lacks the ability to photosynthesize and thus depends on nutrients provided by neighboring trees for sustenance. The roots of *Monotropa uniflora* enter into a mycorrhizal relationship with a mushroom that has already established a tree partner and whose mycelial network then becomes the facilitator of this interspecies nutrient exchange. These networks can span great lengths and include numerous species simultaneously. In fact the largest individual organism on earth is a massive *Armillaria* species (known as Honey Mushroom) that encompasses 3.8 kilometers (2.4 miles) in the Blue Mountains of central Oregon.[35]

If we acknowledge the complexity of defining how symbiotic relationships work in the natural ecosystem, it is then possible to ask whether social and artistic relationships can be similarly constituted. This might require a reframing of scholarship that engages questions of relationality. For example, art historian and curator Miwon Kwon defines a clear distinction between community-based projects: those that approach collaboration from within initiated by a "sited insider" and those that remain the work of an "unsited outsider."[36] Perhaps in borrowing from a mycological lexis, the terms "endorelational" and "ectorelational" could be used to describe the artist-participant relationship. Likewise, the dichotomous approach to 'active' versus 'passive'

[34] Ibid, 264-266.
[35] See, Nic Fleming, "The Largest Living Thing on Earth is a Humongous Fungus," *BBC,* November 19, 2014, accessed March 14, 2016, http://www.bbc.com/earth/story/20141114-the-biggest-organism-in-the-world.
[36] Kwon, *One Place After Another,* 135-137.

spectatorship could be opened and enriched by acknowledging that participatory art mimics the symbiotic, ecological model based on mushrooms. As many of these projects require the participation of an audience to be complete, we can consider them a process of mutualism.

In the wake of scholarship on animal studies (Massumi, Haraway), ecocriticism (van Eck), plant neurobiology (Mancuso), critical plant studies (Marder), actor-network-theory (Latour) and posthumanism (Braidotti, Hayles)—all of which acknowledge the importance of interspecies relations that require interdisciplinary collaboration—a focus on the fungi kingdom seems necessary. Posthumanism has been particularly keen on reevaluating the influence of interspecies relationships. The term however is rife with dispute as it encompasses various and often contradicting critical, cultural and philosophical standpoints including: transhumanism, extropianism, new materialism, antihumanism, posthumanities and metahumanities.[37] Theorists such as Katherine Hayles employ posthumanism to consider the fate of embodiment in an epoch of high technologies,[38] while Donna Haraway asks how to collect or categorize things in a world of interconnections[39] (what science writer Lynn Margulis has poignantly referred to as our "symbiotic planet").[40] The common ground amongst posthumanists is the belief that human is a "non-fixed and mutable condition;" beyond that, the field begins to divide (sometimes aggressively), especially between posthuman and transhuman perspectives.

According to Italian philosopher Francesca Ferrando, transhumanism is distinguished by "problematizing the current understanding of the human not necessarily through its past and present legacies, but through the possibilities inscribed within its possible biological and technological evolutions." Fundamental to this future-oriented techno-centric framework are notions of human enhancement, rationality and progress. For example, the first philosophical declaration of Humanity+ (the leading international transhumanist organization) states, "we envision the possibility of broadening human potential by overcoming aging, cognitive

[37] For a detailed investigation on the differences and relations between facets of posthumanism see, Francesca Ferrando, "Posthumanism, Transhumanism, Antihumanism, Metahumanism, and New Materialisms Differences and Relations," *Existenz,* vol. 8, no. 2 (2013): 26-32.
[38] Katherine N. Hayles, *How We Became Posthuman: Virtual Bodies In Cybernetics, Literature, And Informatics* (Chicago: University of Chicago Press, 1999).
[39] Nicolas Gane, "When We Have Never Been Human, What Is to Be Done? Interview with Donna Haraway," *Theory, Culture & Society,* vol. 23, no. 7-8 (2006): 135-158.
[40] Lynn Margulis, *Symbiotic Planet: A New Look at Evolution,* (New York: Basic Books, 1998).

shortcomings, involuntary suffering, and our confinement to planet Earth."[41] The speculative (and ironically anthropocentric) position espoused by transhumanism is fueled by overzealous confidence in the potential of science and technology. Human gene therapy, for example, has concretized eagerness for high technological intervention in human health:

> It [human gene therapy] holds promise for the prevention and treatment of many diseases, as well as for uses in enhancement medicine. The potential scope of genetic medicine is vast: virtually all disease and all human traits – intelligence, extroversion, conscientiousness, physical appearance, etc. – involve genetic predispositions.[42]

The completion of the Human Genome Project in 2003, which codified the DNA sequencing of human beings, has made possible (albeit still experimental in practice) methods of somatic gene therapy in which "a virus is typically used as a vector to insert genetic material into the cells of the recipient's body" (the outcome of which is not inheritable) and germ-line genetic therapy, which is "performed on sperm or egg cells, or on the early zygote" and can be carried into future generations.[43] Unsurprisingly, these practices are surrounded by ethical debates; but what happens when we redirect this technoutopianism onto non-human subjects? For instance, can advanced technology remedy environmental degradation? I am apt to reposition Audre Lorde's proclamation that "the master's tools will never dismantle the master's house" to infer that 'the culprit's tools will never save the victim's house.'

For better or worse, the faith in technology attributed to transhumanism is the defining factor between it and posthumanism. Ferrando reiterates this point by illuminating the "risk of technoreductionism" if indeed technology is to help reform the human condition:

> Considering that a large number of the world's population is still occupied with mere survival, if the reflection on desirable futures was reduced to an overestimation of the technological kinship of the human revisited in its specific technical outcomes, such a

[41] "Philosophy," Humanity+, accessed March 14, 2016, http://humanityplus.org/philosophy/philosophy-2/.
[42] "Transhumanist FAQ," Humanity+, accessed March 14, 2016, http://humanityplus.org/philosophy/transhumanist-faq/.
[43] Ibid.

> preference would confine it to a classist and techno-centric movement.[44]

Although both posthumanism and transhumanism share a sense of urgency in considering humans' mediation with technology, posthumanism does not make this its main focus. It is a monistic philosophy; that is one that acknowledges unity among all living matter. It rejects (at least in theory) a dualistic approach, especially that which exists between nature-culture.[45] It challenges the overemphasis of subjectivity that pervades humanist discourse to emphasize the role of nonhuman agents, such as animals, plants and fungi—what posthuman theorist Rosi Braidotti has described as "expressing an embodied and embedded and hence partial form of accountability, based on a strong sense of collectivity, relationality and hence community building":

> The nomadic vision of the posthuman knowing subject as a time continuum and a collective assemblage implies a double commitment, on the one hand to processes of change and on the other to a strong ethics of ecosophical sense of community. Co-presence, that is to say the simultaneity of being in the world together, defines the ethics of interaction with both human and non-human others.[46]

Donna Haraway, who continues to be heralded as a key figure of posthumanism, has rejected the term 'posthumanism' entirely due to its adoption by technophiles, and opts instead for the phrase "companion species." She believes that the ontology of "species" is the underling question of posthumanism.[47] For Haraway, "the term [species] is simultaneously about several strands of meaning—logical type, taxa characterized through evolutionary biology, and the relentless specificity of meanings."[48] This is not to be confused with speciesism, which like racism or sexism advocates special rights and/or moral superiority based on particular facets of being—in this case on the basis of taxonomy (ie. *Homo sapien* supremacy prevails over all things non-human).

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[44] Francesca Ferrando, "Posthumanism, Transhumanism, Antihumanism, Metahumanism, and New Materialisms Differences and Relations," 28.
[45] See, Rosi Braidotti, *The Posthuman* (Malden: Polity Press, 2013).
[46] Ibid, 169.
[47] Donna Haraway, *The Companion Species Manifesto: Dogs, People, and Significant Otherness* (Chicago: Prickly Paradigm Press, 2003).
[48] Nicolas Gane, "When We Have Never Been Human, What Is to Be Done? Interview with Donna Haraway," 140.

Anthropologist Anna Tsing, too, problematizes the notion of species. She believes that while the categorical identities are a place to start they are not enough. Instead, she believes "ways of being are emergent effects of encounters. […] The term 'multispecies is only a stand-in for moving beyond human exceptionalism."[49] Tsing has been one of the most inspiring authors for my research. Her work has deployed mushroom metaphors as "companion species," as well as to imagine the "possibility of life in capitalist ruins." In her latest book, *The Mushroom at the End of the World,* she positions mushroom organisms as well as the international mushroom trade as systems that resist or are simply inapplicable to a capitalist paradigm to support an eloquent critique of progress-based thinking:

> Progress is embedded, too, in widely accepted assumptions about what it means to be human. Even when disguised through other terms, such as 'agency,' consciousness,' and 'intention,' we learn over and over that humans are different from the rest of the living world because we look forward—while other species, which live day by day, are thus dependent on us. As long as we imagine that humans are *made* through progress, nonhumans are stuck within this imaginative framework too [emphasis in the original].[50]

In light of Haraway and Tsing, I want to suggest that the anthropocentric ideology inherent in humanist thought and avidly denied by posthumanism (though as we can see somewhat upheld by transhumanism), does not position humanity at the beck and call of technological advancements of today but rather at a fertile moment of transition where a model based in symbiosis may very well act as a beacon for expanding our understanding of human relations. Fundamental to a consideration of relationality is the nature of perception, a key notion in the oeuvre of Carsten Höller, whose work we will turn to now. Foregrounding the significance of posthuman subjectivity, this case study insists on transkingdom perceptual analyses and challenges ideas of assumed otherness—a necessary leap before considering the social and artistic propositions modeled by symbiosis.

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[49] Anna Tsing, *The Mushroom at the End of the World: On the Possibility of Life in Capitalist Ruins* (Princeton: Princeton University Press, 2015), 23; 162.
[50] Ibid, 23.

Carsten Höller and Transkingdom Perception

Carsten Höller's groundbreaking installation *Soma* opened on November 5, 2010. The exhibition-experiment divided the main hall of the Hamburger Bahnhof in Berlin into equal halves (fig. 6). Twelve reindeer roamed the centralized sand-filled pen—six on each side of an interior wall. The reindeer's environment was austere apart from *Double Mushroom Clock* (2010) (fig. 7), a grove of fantastically large fiberglass mushroom sculptures, half of each depicting the notorious and hallucinogenic, red with white polka dot mushroom, *Amanita muscaria,* paired with another iconic mushroom species: Puffball (*Calvatia spp.*), Stinkhorn (*Phallus spp*.), Shaggy Mane (*Coprinus comatus*) and King Bolete (*Boletus edulis*). These schizophrenic specimens fruited from a black and white pinwheel that hoisted five dried evergreen trees at its periphery. Over the course of the show, the reindeer used this structure to rub the velvet from their antlers, thus turning the 'clock.' With the exception of those who paid to stay overnight in the exhibition (a point to which I will return in a moment), viewers were restricted to an elevated fenced boardwalk where they could observe the animals below. Suspended above the pen was a "canary scale" balancing two large steel cages home to five canaries each. The corridor that surrounded the zoo-like centerpiece had three other elements: refrigerators full of *Amanita muscaria* specimens and reindeer urine samples (collected by museum staff) (fig. 8); two distinct vitrines displaying field mice; and a small installation consisting of two transparent boxes with one housefly each (frequently replaced). This dualistic design permitted the possibility of a double-blind experiment, although one that was intentionally unclear as to which animals were administered the hallucinogen (if at all) and which were to remain as controls. The exception being that half of the reindeer were explicitly given access to the mushroom, which they gladly ate as they do in the wild.

The exhibition space was constructed so that from various viewpoints, visitors could observe the behavior of the reindeer, canaries, flies and mice and draw their own conclusions about the effects of *Amanita muscaria.* By leaving the methods and data (or lack thereof) ambiguous, and refusing to submit a written conclusion, Höller acknowledges each viewer's unique experience

and subjective observations as valid in the process of testing: "at least in principal the experiment is completed in the minds of the visitors."[51]

Höller's "living picture"-cum-laboratory set out to test the hypothesis of renowned ethnomycologist Gordon Wasson, whose 1972 book *Soma: Divine Mushroom of Immortality,* argues that the hallucinogenic mushroom *Amanita muscaria* is the psychoactive component of Soma, a ritual drink taken by the ancient Aryan people during the Vedic period (1500-500 BCE) prior to their migration south into India. The experiential enlightenment induced by Soma or what Wasson describes as "the ecstasy of existence in the World of Immortals"[52] has been thoroughly documented in the ancient book of hymns, *Rigveda*. However, during the proposed Indo-Aryan migration from Western Asia down through modern day Afghanistan and Pakistan and into India, the recipe(s) and practices were lost. Since the late 18th century, the mystery of identifying Soma's active ingredient has generated a body of scholarship with contradictory hypotheses.[53] If indeed the substance in question is a hallucinogenic mushroom, the implications for the evolution of modern civilization are profound. Radical researchers such as John M. Allegro have argued unequivocally that the roots of Christianity as well as many other religions lie in ancient hallucinogenic mushroom cults.[54] Terrance McKenna, author of *The Search for the Original Tree of Knowledge A Radical History of Plants, Drugs, and Human Evolution,* has taken the theory further to suggest that hallucinogenic mushrooms were essential agents in the evolution of humankind.[55] With that being said, the debate about Soma's identification is only one facet of Höller's engagement with *Amanita muscaria*.

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[51] Sabine Flach, "Negotiations and Metamorphosis: Carsten Höller's SOMA and Mathew Barney's Cremaster," in *Embodied Fantasies: From Awe to Artifice,* ed. Suzanne Anker and Sabrine Flach (New York: Peter Lang, 2013), 85.

[52] Gordon Wasson, *Soma: Divine Mushroom of Immortality* (The Hague: Mouton, 1968), 4.

[53] For other arguments on the identification of the psychoactive ingredient in Soma, see: David Flattery and Martin Schwartz's *Haoma and Harmaline: The Botanical Identity of the Indo-Iranian Sacred Hallucinogen 'Soma' and Its Legacy in Religion, Language and Middle Eastern Folklore*, that argues it is *Peganum harmala* (Esfand or Wild Rue); Harry Falk's "Soma I and II," which concludes it is *Ephedra distachya*; Andrew McDonolad's "A Botanical Perspective on the Identity of Soma (*Nelumbo nucifera* gaertn.) Based on Scriptural and Iconographic Records," who claims it is *Nelumbo nucifera* (Eastern Lotus or Indian Lotus).

[54] See, John M. Allegro, *The Sacred Mushroom and the Cross: A Study of the Nature and Origins of Christianity Within the Fertility Cults of the Ancient Near East*, (London: Hodder & Stoughton, 1970).

[55] See, Terrance McKenna, *Food of the Gods: The Search for the Original Tree of Knowledge A Radical History of Plants, Drugs, and Human Evolution,* (New York: Bantam Book, 1993).

His earliest deployment of the mushroom was *Amanita & Dog* (1996), a diptych consisting of two circular photographs blurred at the margins. One depicts a dog's nose grasped by a human hand and the other a simple but emblematic *Amanita muscaria* specimen growing in its natural habitat (fig. 9). The same year, Höller produced *Muscimol* (1996), a video of himself allegedly intoxicated by the hallucinogenic mushrooms. In 2000, at Fondazione Prada in Milan, Italy, and again in 2005 at the Museum of Contemporary Art in Los Angeles, Höller exhibited *Upside Down Mushroom Room* (2000) (fig. 10). Fabricated at a larger-than-life scale, these *Amanita* sculptures were secured to the ceiling and engineered to revolve around their stipe, commonly referred to as a stalk. His 'mushroom suitcase' series (*Pilzkoffer*, 2008) has been shown at Air de Paris in Paris (2000) and the Gagosian Gallery in Los Angeles (2008). *Amanita* specimen "fruit" from open suitcases and spin with solar power. He has also utilized *Amanita muscaria* in photographic works such as *Mushroom Print* (2003) and *Soma Series* (2006). In 2010, The Monaco Project for the Arts in France invited Höller to exhibit a retrospective of his mushroom artwork. The exhibition, titled *The Fly Agaric Show*, took place at the Pavillon Bosio and consisted of all of the above artworks along with a glass vitrine with twenty-four life-size mushroom replicas (*Doppelpilzvitrine*, 2010) and one of his giant split-specimen mushroom sculptures (*Giant Triple Mushroom*, 2010) (fig. 11). The latter work first exhibited in *Divided Divided* (2010) at Museum Boijmans Van Beuningen in Rotterdam, and has since become somewhat of a trademark appearing at Frieze Art Fair 2014 as an element of *Gartenkinder* (an installation that functioned as a children's playground) (fig. 12), and most recently in 2015 at the Hayward Gallery in London.

Amanita muscaria in its most common iteration, both in the natural ecosystem and within an iconographic context, flaunts a vivid scarlet-red cap speckled with soft, white flakes or dots. The organism itself has a symbiotic relationship with birch, pine and fir trees, thus its habitat distribution spans the entire Northern Hemisphere: from the subarctic Siberian tundra to the blistering Texan desert.[56] It is known as Fly Agaric in English, *Mukhomer* in Russian, *Amanite tue-mouche* in French, *Moscario* in Italian, *Fliegenpilz* in German, *Hong mosquero* in Spanish

[56] Although its ancestral origins are rooted in the Northern Hemisphere, globalization and the mushroom's adaptability have enabled it to spread onto every continent in the world. It is now considered an invasive species. See, Ian A. Dickie and Peter R. Johnson, "Invasive Fungi Research Priorities with a Focus on *Amanita muscaria*," *Landcare Research Contract Report LC0809/027*, 2008.

and *Beni-tengu-take* (or 'long-nosed goblin mushroom') in Japanese.[57] It is surely the most iconic of all fungi. The mushroom derives its cultural history from the Siberian north where shamans have traditionally utilized it as a hallucinogen in spiritual rituals.[58] Indeed, Wasson advanced his proposition with early anthropological research on Siberian tribes.[59] Furthermore, Wasson claimed that reindeer were used to filter and purify the hallucinogenic properties found in the mushroom. He hinged this argument on two points: first, the well-documented fact that human urine produced by someone under the influence of *Amanita muscaria* can administer a hallucinogenic experience with increased intensity and milder side effects (which include vomiting and comatose sleep); and second, that reindeer consume *Amanita muscaria* in the wild, notably for its hallucinogenic effect, and have a particularly keen affinity for urine saturated snow active with the mushroom's alkaloids. Wasson writes, "living as some of these tribesman do in intimacy with the reindeer, almost in a symbiotic relationship with them, they may have found it easy to indulge in the drinking of the urine in imitation of the beasts. Here then would be the genesis of the urine-drinking that has astonished the West."[60]

Wasson's proposed urinary purification of the mushroom's hallucinogenic properties was indeed the springboard for Höller's employment of reindeer—whose participation served to materialize the proposed historical encounter. Furthermore, by implicating the viewer in this pseudo-experiment, Höller recalls the One Health Initiative whose mission is to "promote, improve, and defend the health and well-being of all species." The organization strives to "recognize that human health (including mental health via the human-animal bond phenomenon), animal health, and ecosystem health are inextricably linked."[61] Accordingly, I want to suggest that *Soma* activates interspecies and transkingdom relations through a quasi-scientific method.

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[57] Andy Letcher, *Shroom: A Cultural History of the Magic Mushroom* (New York: HarperCollins, 2007), 118.
[58] Siberia is the size of Europe and the United States combined, covers seven time zones and seventy biogeographical regions. As per usual, the first nations tribes have been victims of colonization and oversimplification. Likewise shamanism is difficult to generalize. The earliest Western reports of native Siberian shamanism date from the late seventeenth and early eighteenth centuries, at which point the shamanic traditions had already had nearly two hundred years of Russian orthodox rule. Ibid, 117-140.
[59] The earliest eye-witness report dates back to Polish traveling author, Adam Kamieński in 1658; it was first called to the attention of the Western World by Swedish army officer Filip Johann von Strahlenberg in 1730. Gordon Wasson, *Soma: Divine Mushroom of Immortality*, 10-25.
[60] Ibid, 161-162.
[61] http://www.onehealthinitiate.com/mission.php, cited in Rosi Bradotti, *The Posthuman*, 161.

At this point I should note that Höller received a doctorate in agricultural science from the University of Kiel and worked as an entomologist until 1994 at which point he abandoned his scientific career for a commitment to the arts. Upon doing so he proclaimed "I want to get out, away from the specialist to the generalist. As an artist, I do not need to submit to any formal constraints and can develop things to the extent that makes sense for me within a given framework without having to undergo special training for the corresponding fields each time."[62] This methodological freedom has fueled the experimentation that has become central to Höller's oeuvre. *Soma,* for example, avoids officially entering the debate surrounding the identification of the ancient Hindi drink, yet imbues the exhibition space with a potential for scientific discovery. While the museum staff was methodical in collecting the reindeer's urine over the duration of the exhibition, the samples were deliberately unlabeled, blurring what might have been the experiment's control. Furthermore, the work is never explicit about who is to test the efficacy or hallucinogenic potency of the urine. Is it the reindeer, the mice, the canaries or the museumgoers themselves? Höller thus creates an antagonistic tension between art and science. Although framed as a science experiment, he conceived the work as an artistic and social proposition. Given the choice, Höller would have permitted unrestricted access to both the space and its substances to allow for a more thorough exploration of the proposed effects.[63] As it was, all the mushrooms and urine samples were locked away in refrigerators—during the day that is.

For 1000 euros night, visitors could book an overnight stay on an elevated circular bed towering above the exhibition (fig. 13). Guests were not only permitted unsupervised engagement with the exhibition space*,* but were also given exclusive access to the museum's permanent collection, which includes work by Andy Warhol, Gerhard Richter and Sigmar Polke. Monetary means aside, it is at this point that viewers truly became participants. This all-or-nothing immersion is not unlike Höller's 2015 exhibition *Decision* at the Hayward Gallery or *Revolving Hotel Room* (2008) at the Guggenheim Museum in New York, in which he designed artworks to host overnight guests. However, in *Soma*, the museum exclusivity included access to the otherwise locked refrigerators, which contained fresh *Amanita muscaria* specimens and presumably

[62] Dorthée Brill, "'We Have Drunk Soma and Become Immortal; We Have Attained the Light, the Gods Discovered,'" cited in Carsten Höller, *Soma: Documents*, 43.
[63] "Meet the Artists: Carsten Höller," Youtube video, accessed February 8, 2016; a panel discussion with Carsten Höller; Simon Maidment, curator of contemporary art at NGV in Melbourne, Austria and Melbourne Festival Creative Associate Lousie Neri.

psychoactive reindeer urine, although that would have been indistinguishable from the conventional urine samples. When asked if Höller tested the reindeer urine himself, he replied, "of course" but reiterated that he too was unaware of which samples were collected from which subjects, further augmenting the element of ambiguity entrenched in the exhibition.[64]

The accompanying exhibition catalog, *Soma: Documents,* consists of excerpted historical documents that span 280 years. This didactic supplement appears to give a comprehensive overview of the Soma identification debate, yet the exhibition and its emphasis on *Amanita muscaria* clearly links Höller's affinity to Gordon Wasson.[65] Informed by discourse surrounding psychedelics, or as the Wassons preferred to call them 'entheogens,' *Soma* raises questions about alternative modes of consciousness. For Höller, the museum is as good a space as any to explore the implications of altered states of mind.[66]

Whether or not one's altered state is substance induced, the proposed interspecies relationships revealed in *Soma* draws attention to ontological notions of perception. The exhibition space—laden with the sound of chirping canaries, pastoral smells of reindeer in captivity and the pervasive dank earthiness of sporulating mushrooms—calls upon the full range of senses. This sensorial mode of display further challenges the scientific method and exemplifies Höller's artistic methodology, which revolves around experience. In an interview with London's Hayward Gallery director Ralph Rugoff, Höller addresses the notion of experience in his work and the limitation of language in addressing art:

> In the end, it's probably impossible to really describe anything that has to do with experience. It's what in science is called "the hard problem." […] So there is an explanatory deficit, which is created not because the models, or ideas, or explanations that we have are lacking in some way, but because of language itself. But through art we have another approach.

[64] Ibid.
[65] In 1955, Gordon Wasson and his wife Valentina Wasson became the first 'outsiders' to participate in the Mazatec Indians' sacred mushroom rituals (*Psilocybe spp.*). Two years later, Gordon Wasson published an article in *Life* magazine called "Seeking the Magic Mushroom," which became the catalyst for recreational magic mushroom in the 1960s.
[66] "Meet the Artists: Carsten Höller," Youtube video.

Echoing Nietzsche who wrote that "even our thoughts we are unable to render completely in words,"[67] Höller thus proposes participatory art (which encompasses the majority of his oeuvre) is a means to elucidate perception; this can help us consider differences among individuals—human and otherwise. The complexity of relationships between animals, insects, mushrooms and humans enacted in *Soma,* expands the notion of relationality, performance and participation to acknowledge the agency of all its participants. The work invites an analysis of perceived behavioral difference (allegedly substance induced) with what I believe to be a posthuman subjectivity. The viewer conceives him- or herself as an experimental subject undistinguished from the reindeer, canaries, mice, and flies. What is at stake is the imagined (or allegedly experiential) state of provoked hallucination. We become aware of our own substance induced (and perhaps dependence on) "altered" states of mind. Consider the intellectual and convivial kick triggered by a cup of coffee for example; is this not an altered existence; one that changes the way we think and act; one that undeniably fuels neoliberal productivism for instance and is thus integral to the human and/or posthuman condition? How might the effects of caffeine differ if it were administered to a reindeer; a mouse; a mushroom? Höller situates the mushroom at the center of his exhibition, poised to signify symbiosis while challenging the ontology and epistemology of human identity. The next case study, while like *Soma* is concerned with the fungi kingdom, empowers its participants human and otherwise not merely as performers but as essential collaborators in generating new systems of symbiosis; ones that function as conceptual gestures as much as they do works of relational art. Imagined spaces illuminate the role(s) of those excluded from a symbiotic model.

Diane Borsato and Dialectic Directionality

Diane Borsato's poetic relational performance, *Terrestrial/Celestial*, was performed in May 2010 for Access Gallery in Maple Ridge, British Columbia. It functioned as a knowledge exchange between the Vancouver Mycological Society and the Royal Astronomical Society of Canada. There were approximately fifty people in attendance, many of which were indifferent to or unaware of its frame as an artwork.[68] The mycologists led a foray for the astronomers during the

[67] Friedrich W. Nietzsche, *Joyful Wisdom* (New York: Frederick Ungar Publishing Company, 1960), 244.
[68] In an interview with Suzanna Nagy, the president of the RASC Vancouver Centre (who attended *Terrestrial/Celestial)*, she expressed great surprise in learning that the event has been framed as an artwork. She considered the event to be "educational outreach." Interview with author on November 30, 2015.

day, teaching them how to hunt and collect mushroom specimens for identification. At dusk, the astronomers assembled telescopes and facilitated stargazing for the mycologists, teaching them how to search for and identify constellations. The work's subsequent documentation has materialized as nondescript, candid photographs of the participants engaging with one another. As such, they have been exhibited at the Articule Gallery in Montreal as part of Le Mois de la Photo, 2011; and in 2012 at the Art Gallery of York University in Toronto. The project is also featured in Borsato's only monograph to date where it is accompanied by a brief artist statement. Both the photo documentation and the project description can likewise be found on the artist's website.

Given the work's ephemerality and its consequent consumption by secondary audiences we must better acquaint ourselves with the performing bodies—that is, the Vancouver Mycological Society and the Royal Astronomical Society of Canada. Only then will it be possible to consider the notion of symbiosis in relation to the aesthetic and pedagogical implications of *Terrestrial/Celestial.*

The Vancouver Mycological Society (VMS) is one of 93 mycological societies affiliated with the North American Mycological Association.[69] As with many mushroom clubs world-wide the member base is made up of a diverse group of individuals who come together based on one mutual interest: fungi. VMS is run by four key officers and 9 board members.[70] They hold a monthly meeting that invites members to share their collected specimens and hone their identification skills while swapping stories of forest escapades. These meetings often host guest speakers who present on a wide array of topics from the fermentation of beer and wine to convergent evolution. Attendance at a typical meeting ranges from 30 to 100 members; this is a community that prides itself on the diversity of its membership. In my own experience as a member of the Spokane Mushroom Club, Northwest Mushroomers Association and Le Cercle de Mycologue de Montréal, I have encountered elementary school teachers, wine salesmen, dancers, chefs, professional mycologists, children and a shamanic practitioner to name just a few. What brings these people from all walks of life together is the magic and mystery of the

[69] North American Mycological Association, accessed April 12, 2016, http://www.namyco.org/clubs.php.
[70] Vancouver Mycological Society, accessed April 12, 2016, http://www.vanmyco.com/about.htm.

fungi kingdom. Some are photographers who are attracted to the mushroom form; others look to learn about foraging for sustenance or as a commodity. Many enjoy the challenge of identification and the language of taxonomy, while others are interested in forest ecology; there are also those who simply want to learn about psychedelics. Needless to say, this makes for an eclectic group of people interested in food, science, spirituality, walking, health, and nurturing a relationship to nature.

The inauguration of the VMS followed the success of the Vancouver Mushroom Fair, which was first held at the VanDusen Botanical Gardens in 1975 and consisted of countless collected mushroom specimens that were identified, organized and put on display for the general public. The fair was an instant success and thus declared an annual event. Three years later on November 7, 1978 the organizers of the fair founded the Vancouver Mycological Society.[71] Apart from the weekly meetings in which everyone helps to identify collected specimens, the society is also responsible for weekend forays lead by specialists in the member base or guest leaders. The society continues to organize the Vancouver Mushroom Fair each October, and produces a quarterly newsletter called *Mycofile*. VMS members gain access to a private library, which consists of cookbooks, identification keys, field guides, general mycology texts and information on the cultivation of mushrooms. They also coordinate an annual potluck called "Survivors Banquet," held at VanDusen Botanical Gardens.[72]

The Royal Astronomical Society of Canada (RASC) has a much older history. It began as the Toronto Astronomical Club in 1868 and had variable levels of activity until 1903 when the King of the Dominion, Edward VII of England, granted permission for its status as "Royal."[73] The society began to grow throughout the nation and today consists of 28 centers and about 4600 members. The Vancouver Centre was founded in 1931 and today has 220 active members.[74] They pursue two main objectives: first to promote an interest in astronomy among the general public, which they do by hosting public lectures, public star gazing nights, and involving themselves with groups such as Scouts; second, they strive to contribute to advancements in

[71] Ibid.
[72] Ibid.
[73] Peter Broughton, *Looking Up: a History of the Royal Astronomical Society of Canada* (Toronto: Dundurn Press, 1994).
[74] Suzanna Nagy (the president of RASC Vancouver Centre) in an interview with the author, November 30, 2015.

astronomy. Members gain access to a private specialized library, which includes over 500 astronomical books. The society also has an extensive collection of telescopes and astronomy equipment available for rent. The telescopes range from the small introductory hand-held 2" refractors to a 14" Newtonian telescope used for analyzing nebulae, star clusters and comets. They also provide equipment and expertise for astroimaging (specialized outer space photography), which has become increasingly popular among sky enthusiasts as technologies become more accessible. The society publishes a newsletter six times a year called *NOVA* that includes announcements and event schedules, general astronomy news, articles written by society members and classifieds. In addition to a subscription to *NOVA*, members receive six issues of RASC's national publication, *Journal* (active since 1906), and six issues of *SkyNews*, Canada's leading amateur astronomy magazine.

We mustn't forget a third "performing body" in *Terrestrial/Celestial*—that is the natural world. Indeed, this was the common ground that brought these communities into a pedagogical happening, although without the framework of contemporary art they would not have met. Or perhaps in the transitory moments of dusk, mushroom hunters, who have endured the waning sunlight with tireless devotion to the forest floor, might stumble upon astronomers preparing to comb the night's sky. On this spring day however, Diane Borsato was responsible for staging the meeting of these worlds.

The signature image for *Terrestrial/Celestial* as it appears in Borsato's monograph shows two middle-aged men overtly representative of their respected communities (fig. 14). Composed in a conventional snapshot style, the two smiling men stand side by side against the night's sky. The man on the left wears jeans and a black tee shirt with a printed photograph of what looks to be a species in the genus *Lepiota*. In small Papyrus font his shirt reads "Vancouver Mycological Society, 30th Anniversary 2009." The man on the right also wears a black tee shirt and jeans. His tee shirt features an iconic swirling galaxy and silver letters spelling out "R.A.S.C. The Royal Astronomical Society of Canada, Vancouver Centre." The camera's blaring flash pulls both men out of the empty background along with a snippet of a pale yellow mid-80's sedan. This low-fi documentary aesthetic reminds the viewer that the artwork's importance lies outside of its visual representation, which of course becomes a key post-performance component for dissemination.

The other six images included in the catalog are equally as "inartistic;" so much so as to bare the question of why a relational artwork that is necessarily ephemeral is documented so scarcely and with so little concern for visual aesthetics? I believe this has to do with establishing a hierarchy of interest—a reminder that we're looking at the remnants of a unique relational encounter.

Borsato's artist website contains sixteen images from the event that appear to be ordered roughly chronologically. There is an image of the group huddled around their mushroom findings (fig. 15), a close-up of a hand holding a mushroom specimen, a staged group portrait, as well as individuals in conversation or operating one of the impressive telescopes (fig. 16). There is also an image of an open notebook that is presumably Borsato's (fig. 17). On the one page there are two sets of loose, schematic sketches. The first is a contour drawing of a yellow morel (*Morchella esculenta*) next to a False Morel (*Gyromitra esculenta*) whereby attention is given to the morphological elements that distinguish them. The second drawing is simply a few dots and lines to indicate the Little Dipper and its relative location to the Big Dipper. Each constellation is labeled accordingly and the tail of the Little Dipper is circled and noted as the North Star, also known as *Polaris*. On the right-hand page there are two columns ruminating on the commonalities and differences between mycology and astronomy. Based on the variance in penmanship, it is clear that the ideas were transcribed collectively. This coauthored homological reflection states that mycology "needs rain" and "closed forest areas" while astronomy "needs clear skies" and "open spaces." Also, that mushroom hunters work in the "morning" while astronomers works at night; one looks at spores while the other looks at stars. "Names for everything" appears in both columns as does "mosquitoes," "odentificaiton" [sic], and "disappointment." This dialectical articulation reveals the conceptual potency of *Terrestrial/Celestial*. By emphasizing mycology and astronomy's respective interests, processes, realities and idiosyncrasies, Borsato and the participants embody the interconnectivity between socio-disciplinary organisms. Her website complements this staged dialectic with a metaphoric synthesis:

> Mycology is visceral, it relies on all our immediate and proximal senses, and it is concerned with the fecund and ephemeral. It exists in a time scale of seasons, and of hours, as things can decay and dissolve before you even empty your basket. The practice of astronomy requires amazing

> feats of conceptualization and imagination. It's concerned with the elemental and the otherworldly, and things exist at distances, in numbers, and in time scales that exceed comprehension. Both practices are much assisted by a range of technical devices from microscopes to telescopes, and by enthusiastic teachers who can animate everything from tiny spores to a speck of distant light.[75]

On the one hand, *Terrestrial/Celestial* illuminates each community's unique devotion to directionality: astronomers focus their observations upward into the night's sky, hunching behind telescopes and gazing into infinity, while mycologists turn towards the ground, scouring its surface for ephemeral beings. Art historian, Amanada Boetzkes expands on this literal directionality in regards to how we see art. She recalls Steinberg's theory of "flatbed picture plane," in which he argues that the artwork of Robert Rauschenberg and Jean Dubuffet brought to the fore their imagined surface as horizontal. Until Rauschenberg and Dubuffet, Steinberg claims, art was created for a human audience with an assumed vertical orientation, or as Boetzkes writes, "horizontality calls into question the artist's position of visual mastery. The artist's goal is not to reproduce or express the world from her or his given perspective but rather to reveal the work involved in coming to grips with (or one might say, finding a ground from which to see) the world."[76] Boetzkes is concerned with the literal implications of directionality. *Terrestrial/Celestial,* by conjoining two societies that have devoted their practices to opposing orientations (and indeed defining and identifying these realms) we are left questioning the earth, the sky and perhaps everything in-between.[77]

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[75] "Terrestrial/Celestial," Diane Borsato, accessed April 14, 2016, http://dianeborsato.net/projects/terrestrial-celestial/.

[76] Amanda Boetzkes, *The Ethics of Earth Art* (Ann Arbor: University of Michigan Press, 2010), 118.

[77] Walter Benjamin in his paper "To the Planetarium" articulates beautifully the impact of empirical science on the mythology of the cosmos. His attention to astronomy as a collaborative pursuit not only among thinkers but as a collaboration with the universe itself is remarkably poignant:

> Nothing distinguishes the ancient from the modern man so much as the former's absorption in a cosmic experience scarcely known to later periods. Its waning is marked by the flowering of astronomy at the beginning of the modern age. Kepler, Copernicus, and Tycho Brahe were certainly not driven by scientific impulses alone. All the same, the exclusive emphasis on optical connection to the universe, to which astronomy very quickly led, contained a portent of what was to come. The ancients' intercourse with the cosmos had been different: the ecstatic trance. For it is in this experience alone that we gain certain knowledge of what is nearest to us and what is remotest from us, and never of one without the other. This means, however, that man can be *in ecstatic contact with the cosmos only communally* [emphasis added]. It is the dangerous error of modern man to regard this experience as unimportant and unavoidable, and to consign it to the individual as a poetic rapture of starry nights.

On the other hand, the work foregrounds the relationship between these two disparate communities—one concerned with the fleeting forest floor and the other with the overwhelming dynamism of outer space. In this sense, an analysis can be informed rather conventionally by relational aesthetics; the imagined conversations and exchange of knowledge become "lasting encounters," or in the words of Nicolas Bourriaud, we are witness to "the dynamic relationship enjoyed by an artistic proposition with other formations, artistic or otherwise."[78] Borsato's earlier performance-cum-mushroom hunt, *The Chinatown Foray* (to which I return below), has been explicitly historicized as a work of relational aesthetics.[79] However, I believe this eclipses the far more interesting conceptual and pedagogical considerations of Borsato's work. Yet Claire Bishop's adamant critique of relational aesthetics is also unsatisfying; she argues that the movement touts the dissolution of modernist artist-viewer hierarchy but in fact reinforces traditional unbalanced power structure through antagonism.[80] I want to suggest that *Terrestrial/Celestial* positions itself apart from Bourriaud and Bishop by establishing a pedagogical framework punctuated by poesis. Instead of upholding conditional participation based on established terms by the artist, participants collectively enact interdependence of terrestrial, celestial and social worlds. This embodied and empowered engagement produces posthuman subjectivity and employs sensorial analyses poised in metaphoric symbiosis. In other words, Borsato's performative mushroom forays are concerned not with transkingdom perception, as I described in the work of Carsten Höller, but deeply betrothed to notions of transkingdom representation.[81]

Walter Benjamin, "To The Planetarium" as quoted in Joshua Simon's *Neomaterialism* (Berlin: Steinberg Press 2013), 68-69.

[78] Nicolas Bourriaud, *Relational Aesthetics,* 21.

[79] "In the tradition of relational aesthetics where everyday events are manipulated and exaggerated by an artist in order to create the conditions for conversation, relating, and knowledge exchange, Borsato invited mycologists to participate in an urban foray, with field guides in hand and magnifying glasses around their necks." Springgay, "'The Chinatown Foray' as Sensational Pedagogy," *Curriculum Inquiry*, vol. 41, no. 5 (2011): 638.

[80] See, Claire Bishop, "Antagonism and Relational Aesthetics."

[81] See other works by Borsato such as, *Videos about Plants* (2002-2003); *How to Eat Light* (2003); *Three Performances (After Joseph Beuys, Marina Abramovic, and Bonnie Sherk)* (2008); *Snakebus* (2009); and *Apiary Videos* (2013).

Mycopedagogy[82]

Stephanie Springgay, one of the foremost writers on Borsato's work, has developed a notion of "liveness or sensational pedagogy" to consider how the movement of bodies facilitates the act of learning. According to Springgay, knowledge becomes a "sensational and affective event" in that Borsato's interventions and performances deemphasize traditional methods of vision and hearing in lieu of taste, touch and smell.[83] This haptic methodology is one of the defining threads throughout Borsato's oeuvre. *Sleeping with Cake* (1999) for example, considers the idea of comfort in comfort foods and involved Borsato baking and sleeping with ten different cakes. Later that year, she boiled sentimental objects in *The Broth* (1999) to "distill the essence of sentiment." *Artifacts in my Mouth* (2003) perhaps most explicitly brings her fascination with multisensory art to the fore (fig. 18). This action, which was enacted at the Museum of Ste. Hyacinthe in Quebec, consisted of a sensorial exploration of the museum's collection. Chaperoned by museum staff she opened vitrines to taste and smell the objects on display.

In 2008 and 2010, Borsato performed the aforementioned *The Chinatown Foray* on two occasions: members of the Mycological Association of Toronto and the New York Mycological Society respectively joined her on a mycological foray through "Chinatown" (fig. 19). Using field guides and characteristic mushroom hunting methods and procedures they scoured markets and medicine shops in search of specimens to identify as they would in the forest. Except that instead of relying on a keen understanding of tree association to find mushrooms for example, participants navigate cultural terrain, following the leads of a dynamic urban sensorium (ie. smells of the city, color of the lights and directions on the signs). Like *Terrestrial/Celestial,* Borsato juxtaposes cultural practices to facilitate evocative collaborations—actual as well as imagined. However, *The Chinatown Foray* positions interracial collaboration as much in question as interspecies collaboration. Consider for instance a photograph in the project's documentation, which shows a hand pointing at a bilingual itemized list of mushroom inventory, presumably consulted to insure correct identification (fig. 20).

[82] I borrow this term from Craig Dworkin's essay "Opinion: Mycopedagogy," *College English,* vol. 66, no. 6 (July 2004): 603-611.
[83] Stephanie Springgay, "'The Chinatown Foray' as Sensational Pedagogy."

Springgay contends that "close, critical, and deeply contextual analyses of relational art practices as sensational pedagogy advances, develops, and enhances understandings, theories, and practices of body knowledge."[84] While I share her desire to shift the current discourse around relational art, Springgay's inherently humanist approach to ideas of sensorial experience erases the relational significance of animals, plants and mushrooms in projects such as those I'm developing here. Perhaps a more inclusive takeaway from Springgay's analysis is her notion of "living inquiry" as an embodied experience in which "self-perceptions and world-perceptions are sensuously and creatively intertwined with how we examine educational phenomena."[85] This more aptly speaks to Borsato's reverence for the methods of natural science, and alludes to a parallel facet of her art practice: teaching.

Diane Borsato has been a professor of art at the University of Guelph since 2006. In October 2015, she invited me to help facilitate a mushroom foray in her class, Outdoor School: Special Topics in Extended Practices. I was thus able to witness and contribute to her mycological pedagogy. For me, it was unmistakably a work of relational art, one in which as an artist, I could engage and challenge elements of my own practice. The fluidity between my roles as a mushroom expert, artist and art historian made for a dynamic social exchange that on a visceral level gave me valuable insight into Borsato's working process. The class consisted of fourteen students who were exploring contemporary art practices that engage with among other things: natural history, farming, navigation, horticulture, entomology, cloud physics, botany and mycology. On several occasions, the students were asked to read outdoors en masse—a modest encounter with the unpredictability of nature as well as an intervention in the expectations of higher education. They took field trips to places such as Mono Cliffs Provincial Park and the University of Guelph Insect Collection. Borsato invited specialists, such as entomologist and birdcall impersonator, Chris Earley, to conduct workshops and each student was expected to lead their own skill-based workshop. Examples included: how to react to a wild animal confrontation, synchronized swimming and learning to waltz.

[84] Ibid, 654.
[85] Stephanie Springgay, *Body Knowledge and Curriculum: Pedagogies of Touch in Youth and Visual Culture* (Bern: Peter Lang Publishing, 2008), 38.

On this unusually warm autumn morning, I was joining her class on a mushroom foray in Guelph Arboretum Nature Reserve. I met Diane at her home in "The Junction," a former working class neighborhood in the East side of Toronto where she lives with her husband Amish Morrell (editor in chief for *CMagazine*) and her then five-year old son Felix (fig. 21). Her Italian heritage was immediately familiar as she enthusiastically and graciously welcomed me into her home, preparing a single stovetop espresso for me and Amish and a cup of Assam tea with milk for herself.[86] We sipped our hot drinks while gathering supplies for the mushroom foray.

Given Diane's interest in mycology (not to mention the art historical/pedagogical precedent set by John Cage at the New School of Social Research), a mushroom hunt was a perfect addition to the curriculum. However, Diane was quick to share that in every advanced-level thematic studio course she has taught at the University of Guelph she's managed to work in a mushroom foray:

> I taught a course on food and contemporary art: mushroom foray; then a course on performance and social practice works called Live Art: mushroom foray; a course on Walking: mushroom foray. And now in Outdoor School: of course a mushroom foray. I've always been able to make it work.[87]

She and I met the students on the outskirts of Guelph Arboretum Nature Reserve. We distributed a selection of field guides and together introduced the basics of mushroom hunting. We discussed key morphological features such as the overall stature of the mushroom, gill attachment, size and color as well as the importance of smell and noting the immediate habitat, possible tree associations, and the substrate on which the specimens grow. We described how to collect and care for the mushrooms while in the field to insure every part stays intact as well as a brief note on sustainable picking practices. We then ventured off in small groups into the trail-less forest. After about an hour and a half we reconvened and spilled our findings on the hood of Diane's car (fig. 22). We identified specimens and discussed edibility, toxicity, taxonomy, commons names, folklore and swapped experiences of being in the woods with intentionality (a first for many of the students). I briefly discussed the relationship of mushrooms to forest ecology and the important distinction between the mycelium as organism and the mushroom as

[86] In 2015, Borsato became a tea sommelier. Perhaps tea will find its way into Borsato's practice in the near future.
[87] Diane Borsato in an e-mail exchange with the author, November 2, 2015.

fruit (fig. 23). Diane made a point of paralleling the skills needed in mushroom hunting with those of art making: such as acute observation, patience and curiosity. Here we see a glimpse into the interwoven layers of Borsato's art, pedagogy and fascination with the natural world—each of which engaging with what anthropologist Anna Tsing has called an "art of noticing." For Tsing, the "art of noticing" is concerned with "assemblage" as patterns of unintentional coordination. She writes: "to notice such patterns means watching the interplay of temporary rhythms and scales in the divergent lifeways that gather."[88] I believe this to be a unifying notion between relational art and symbiosis, both of which if framed in conjunction, can generate essential *socio-ecological* lifelines.

Noticing Symbiosis

As urban metropolises and indeed human populations continue to expand into the natural environment, the highly industrialized materials necessary to support this existence usurp resources utilized by animals, plants, and mushrooms within these landscapes. While this parallel reality continues to recede from collective consciousness, artists such as Diane Borsato and Carsten Höller are experimenting with transkingdom relationality and modes of representation. They each utilize mushroom organisms for their ability to evoke symbiotic processes. At the same time, they draw out the multiple metaphoric and emblematic characteristics heralded by this mysterious kingdom. Höller positions mushrooms at the crux of interspecies experimentation; the mushroom's perceived hallucinatory effect acts as a signpost to reveal parity amongst transkingdom relations. Meanwhile, Borsato uses the study of mushrooms as a foundation for staging new homological connections punctuated by shared methodologies between art production, pedagogy and mushroom collecting. The act of gathering, for example, simultaneously reflects the world of mushrooms and the intermediary role artists and teachers play in the conception of art and knowledge. John Cage was the first to explore this unique interdisciplinarity and as we have seen he continues to be an important point of departure for the evolution of mushrooms in contemporary art.

Both *Soma* and *Terrestrial/Celestial* effectively gather organisms to propose a transkingdom exchange. Most significantly, these clusters become more than the sum of their parts and thus

[88] Anna Tsing, *The Mushroom at the End of the World*, 23.

demand that we *notice* symbiosis. But how, if at all, might a work of art approach an understanding of, or better yet *feel* the dynamism of symbiosis? *Terrestrial/Celestial* suggests that it could begin by conjoining social communities within a greater ecological landscape of interconnection. Each community begins the exchange insulated by the familiarity of their voluntary social network—astronomers and mycologists respectively. In an effort to collapse assumed differences, Borsato's artistic proposition co-defines the groups' common methodologies—indeed the unifying principles by which each community has formulated its collective identity. In other words, the work positions the methods of astronomy in dialog with those of mycology; this in turn mirrors the commonalties between the social relationships in question. Participants are met with a fleeting moment of freedom, in which lies the profundity of Borsato's gesture. By staging each community's respective quotidian actions as a performance, *Terrestrial/Celestial* metaphorically positions the universe on a spectrum (from terrestrial to celestial), thus acknowledging *every* participant in the biosphere. As humans, we are momentarily liberated from the qualities that have exiled the modern "civilized" human from kingdom *Animalia*—namely our insistence on the delusion of independence from a greater world of interconnection. One needs only to look inside the human microbiota to find a plethora of vital symbiotic relationships with organisms such as bacteria and fungi. These are essential and lifelong collaborators that make possible the existence of the human being. Not to mention humans' complete reliance on healthy and renewable ecological processes for sustenance, water and air. With that being said, by framing the encounter as a work of art, Borsato proposes collaboration without exploitation as a means of existence. Meanwhile, her privileged position as artist quietly recedes into the emergent social organism generated by the work.

Carsten Höller on the other hand, maintains a hierarchy amongst the performers; the mode of participation is conditional. The viewer/participant is forced to comply with the work's provided structure—institutional, artist conceived, or otherwise. This may at first seem opposed to the mutualistic connotations of symbiosis, which I've argued thus far is essential to the analysis of *Soma*, however in accordance with the mycorrhizal model as it functions in the ecosystem, relationality and collaboration are in fact restricted to particular species. Not every organism is welcome to the benefits of mutualism and reciprocity; indeed exclusivity extends beyond the human condition. As per issues of class discrimination, exclusivity is problematic if we are to

entertain the possibility of symbiosis in all its complexity as being a metaphor for human relations (consider for instance the outrageous monetary contribution required to become a conventional relational participant, so to speak, in Höller's "experiment"). Nevertheless, the limitations for engagement produced by relational projects such as *Soma*, reflect the ways biological agents in a mycelial network must comply with a determined biological framework. While we may never fully understand the nuance of conditional interspecies exchange in the natural ecosystem, the relationships are nonetheless conditional, perhaps even unjust or unbalanced depending on one's standpoint. Yet, they are essential to the larger functionality of interconnection. This is in no way an attempt to defend elitism that may write itself into participatory and relational art practices; I am simply drawing attention to the fact that *Soma,* too, effectively performs symbiosis.

This begs the question: what enables an organism access to such an invaluable ecological cooperative lifeline; and how might this inform fluctuating understandings of what it is to be human? Likewise, if symbiosis is performed in collaborative or relational art who can participate and what are the power dynamics in effect? One thing is certain; pragmatic resolutions will vary from those modeled in the natural ecosystem. While there is a wealth of ecological knowledge from which methods may be gleaned, mimicry will not suffice. The boundaries between human and non-human are in flux! This shifting modality, performed in the case studies above and exemplified by posthumanism, has revealed that everyone is an actor in our symbiotic planet. By acquainting oneself with notions of symbiosis we become attuned to the potentiality of confluence. This recognition extends beyond ecological relationships and I believe it can inform the fundamental questions that surround relational art. By foregrounding transkingdom relationality and posthuman subjectivity, art practices today are in a position to challenge the very notion of participation *and* collaboration. The "art of noticing" suggests a change in the way we look—one that allows for the consideration of "communal effects without assuming them." Perhaps this will allow for the diversification of epistemological questions that surround contemporary art and in turn credit collaborations that might otherwise go unnoticed.

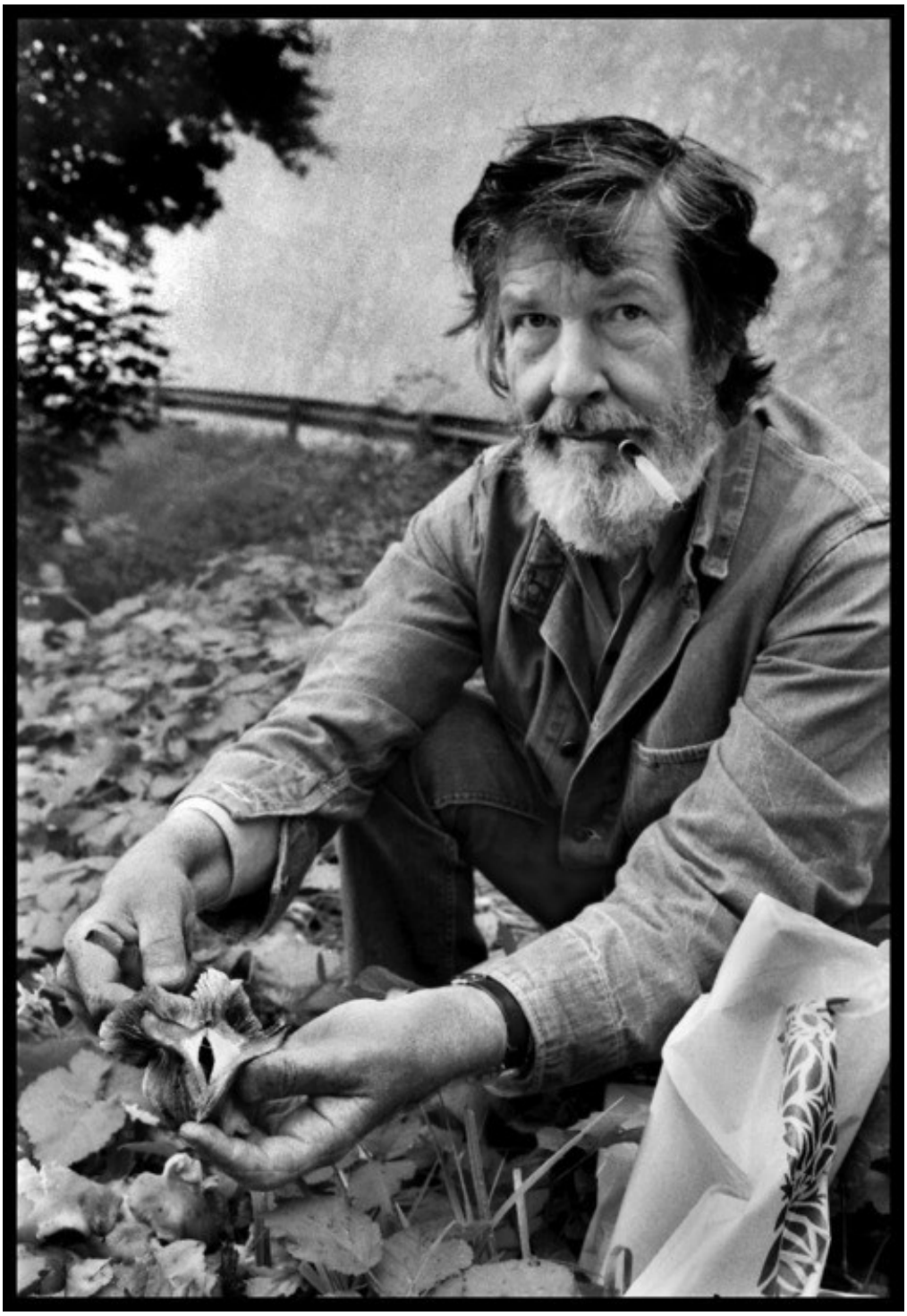

Fig. 1 | John Cage collecting mushrooms in Grenoble, France (Spring 1972).
Photograph by James Klosty

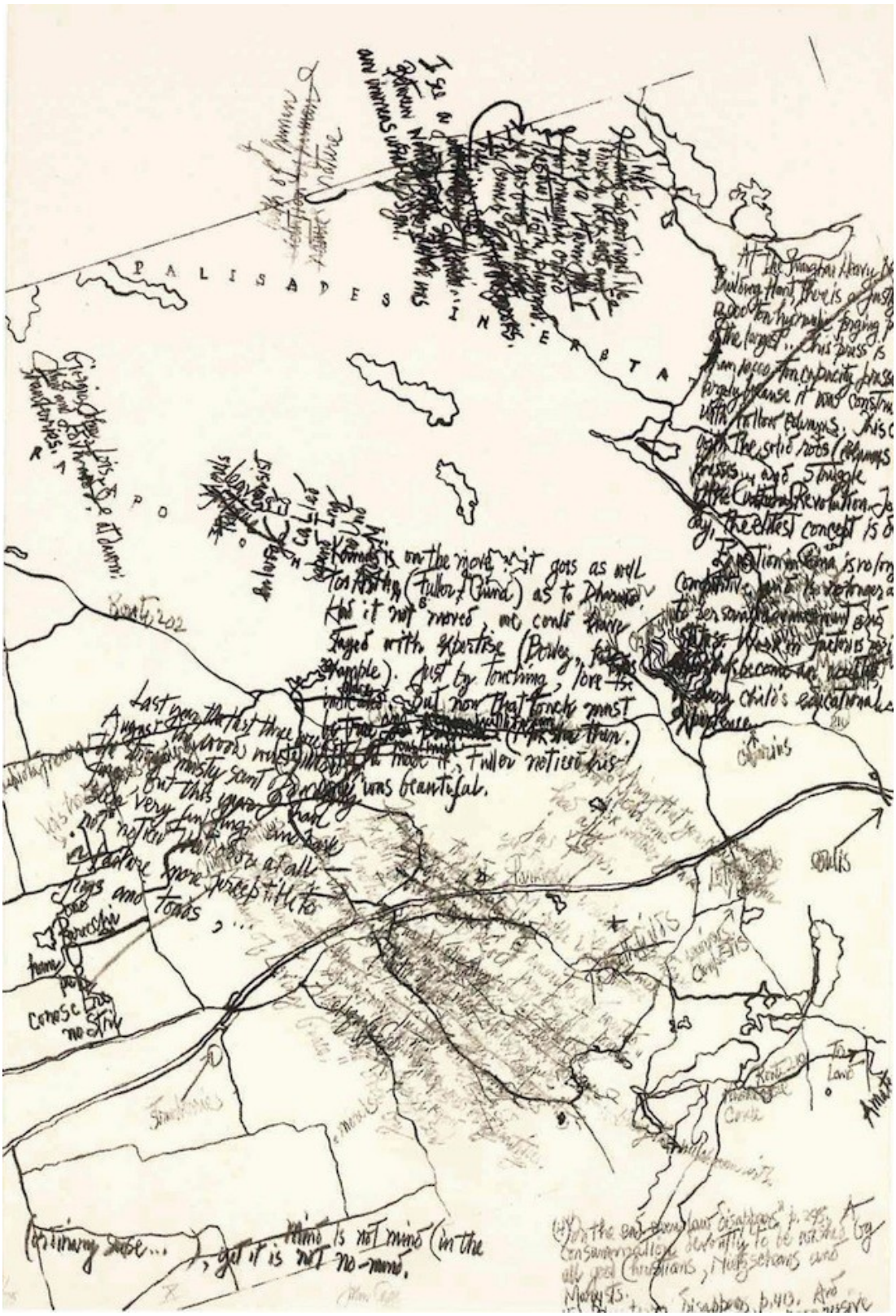

Fig. 2 | John Cage, *Mushroom Book, Plate VIII* (1972), lithograph, 22.5” x 15” (57.1 x 38.1 cm), Edition 51/75. © John Cage Trust at Bard College

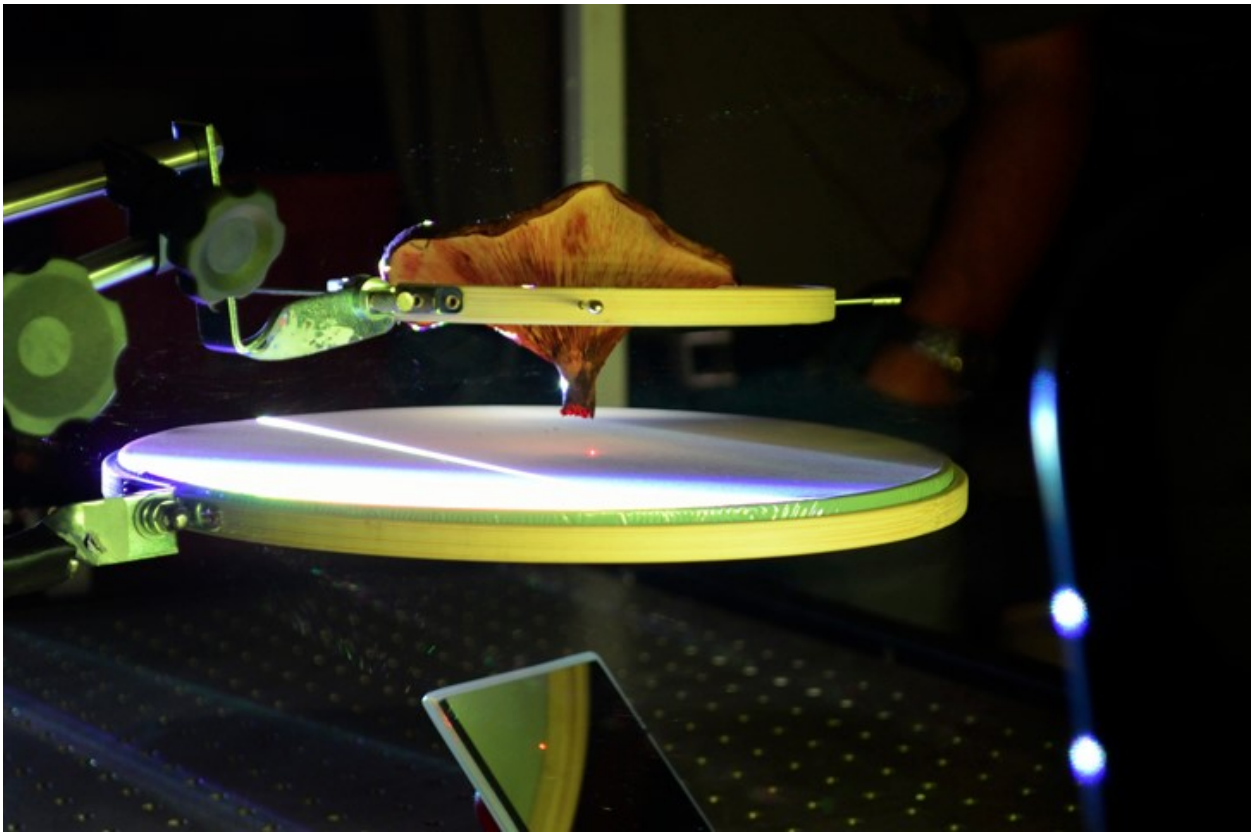

Fig. 3 | Paul Walde, *Mycolophonia* (2014), photo documentation. Photograph courtesy of artist

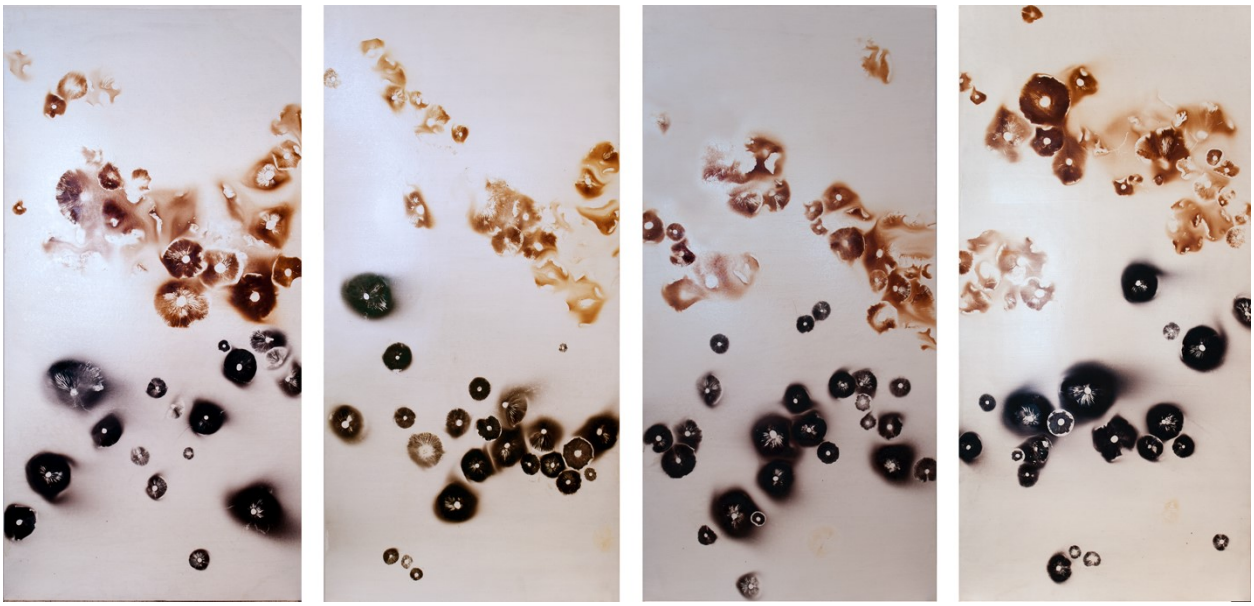

Fig. 4 | Paul Walde, *Interdeterminacy (for John Cage)* (2010 – 2012), panels 1 through 4 of 8, mushroom spores on primed wood panel with MSA UV inhibiting acrylic varnish, each panel: 48” x 24” (122 cm x 61 cm). Photograph courtesy of artist

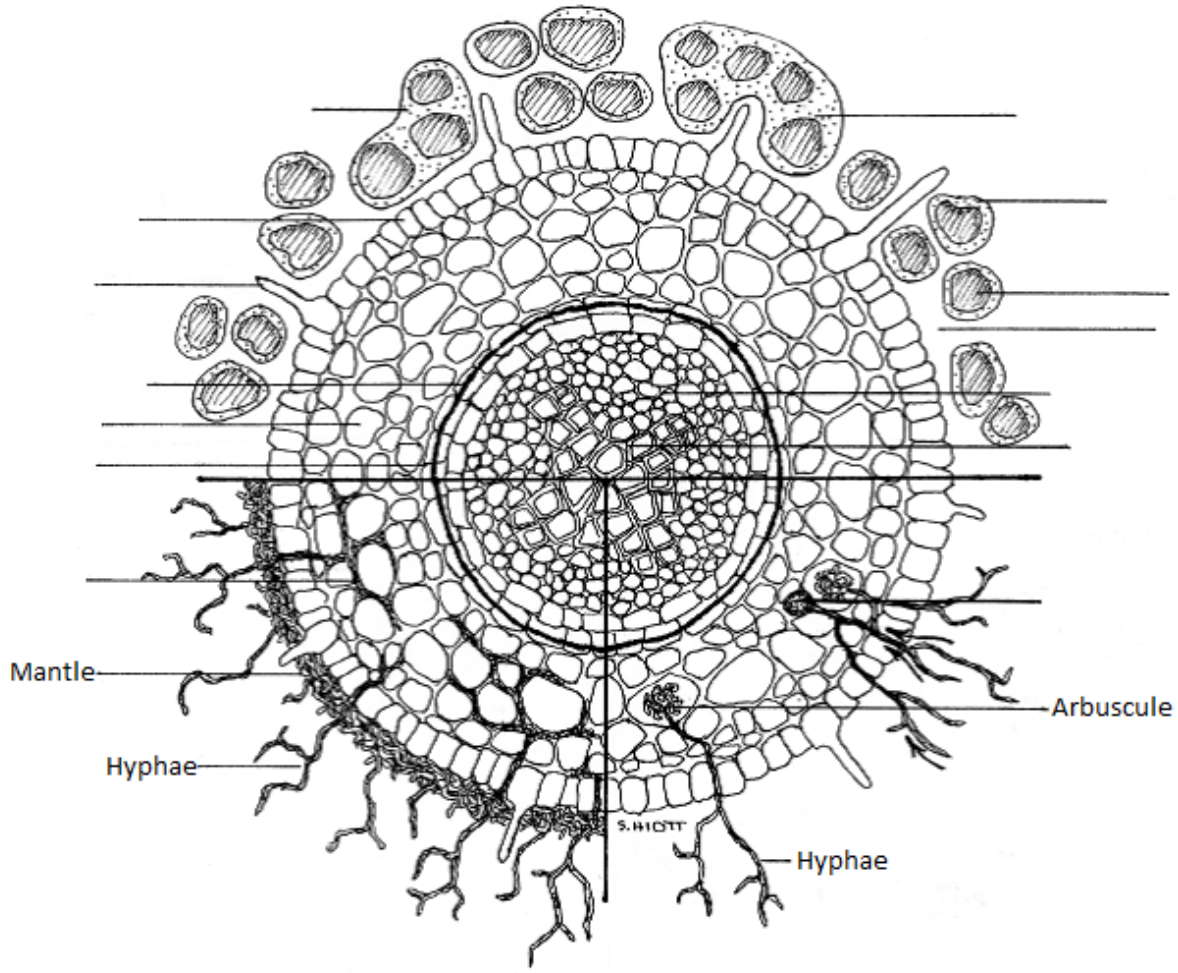

Fig. 5 | Cross-section of a vascular plant cell: without any mychorrizae (top); with an ectomycorrhizal partner (bottom left); with an endomycorrhizal partner (bottom right). Sally Hiott, *Three views of a cross section of plant root, illustrating two predominant types of soil mycorrhizae* (2009)

Fig. 6 | Carsten Höller, *Soma* (2010), installation view, Hamburger Bahnof, Berlin, Germany

Figure 7 | Carsten Höller, *Double Mushroom Clock* (2010), installation view from *Soma* (2010), Hamburger Bahnof, Berlin, Germany

Figure 8 | Carsten Höller, *Soma* (2010), installation view of refrigerators stocked with fresh specimen of the hallucinogenic mushroom *Amanita muscaria* as well as jars of collected reindeer urine, Hamburger Bahnof, Berlin, Germany

Figure 9 | Carsten Höller, *Amanita & Dog* (1996), color photographs Ø 12” x 4.75” (Ø 30.7 x 12.1 cm) each

Figure 10 | Carsten Höller, *Upside Down Mushroom Room* (2000), installation view, Fondazione Prada, Milan, Italy

Figure 11 | Carsten Höller, *The Fly Agaric Show* (2010), installation view, Pavillon Bosio, Monaco, France

Figure 12 | Carsten Höller, *Gartenkinder* (2014), installation view, Frieze Art Fair, London, England

Figure 13 | Carsten Höller, *Soma* (2010), installation view of the elevated bed in which guests could reserve an overnight stay for 1000 euros a night. Hamburger Bahnof, Berlin, Germany

Figure 14 | Diane Borsato, *Terrestrial/Celestial* (2010). Photograph courtesy of artist

Figure 15 | Diane Borsato, *Terrestrial/Celestial* (2010). Photograph courtesy of artist

Figure 16 | Diane Borsato, *Terrestrial/Celestial* (2010). Photograph courtesy of artist

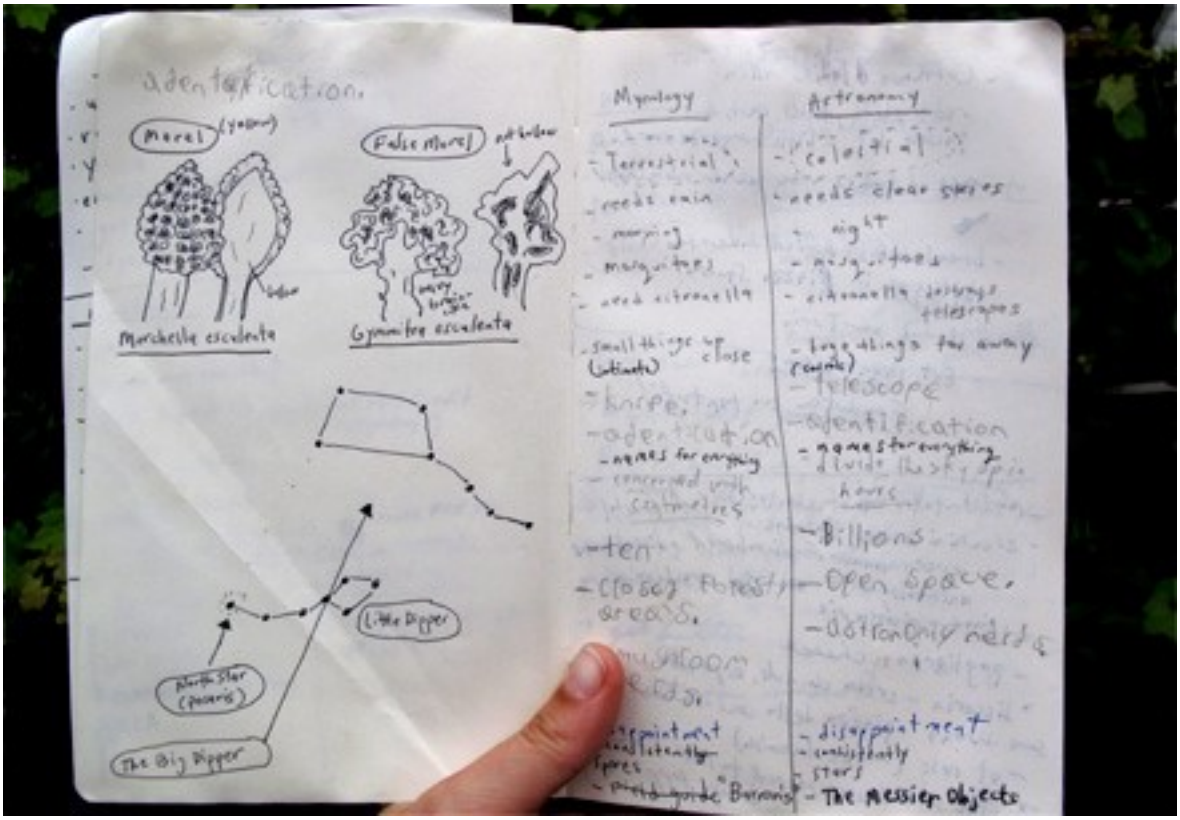

Figure 17 | Diane Borsato, *Terrestrial/Celestial* (2010)

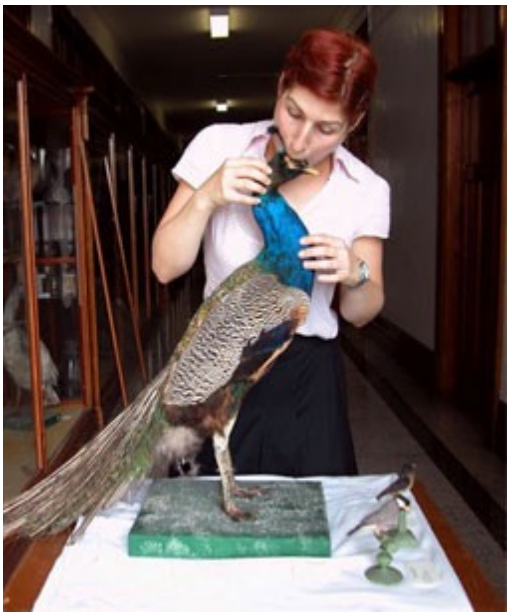
Figure 18 | Diane Borsato, *Artifacts in my Mouth* (2003), performance/intervention and photographs, Ste. Hyacinthe, Québec, 2003

Figure 19 | Diane Borsato, *The Chinatown Foray* (2010). Photograph courtesy of artist

Figure 20 | Diane Borsato, *The Chinatown Foray* (2010). Photograph courtesy of artist

Figure 21 | Diane Borsato and her husband Amish Morrell with their mushroom quilt at home in Toronto, Ontario, October 7, 2015. Photograph by author

Figure 22 | Diane Borsato with students from Outdoor School: Special Topics in Extended Practices, Guelph Arboretum Nature Reserve, October 7, 2015. Photograph by author

Figure 23 | Dario Ré with students from Outdoor School: Special Topics in Extended Practices, Guelph Arboretum Nature Reserve, October 7, 2015. Photograph courtesy of artist

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